

Components	TPM	RCM
Focus on important machines	no	Yes
Creation of inspection methods for the equipment	no	Yes
Individual determination of the maintenance strategy	no	yes
Tips on the use of diagnostic methods	yes	yes
Creation of spare part management	no	only general tips
Instructions on inclusion of sub-companies	yes	No
Tips for constructive modifications	yes	Yes
Instructions for formation of redundancies	no	Yes
Tips for the speedy replacement of construction groups	yes	Yes
Description of maintenance tasks	Inspection and servicing (<u>not</u> including repairs)	Inspection and servicing (<u>not</u> including repairs)
Tips for increased productivity	no	No
Determination of time needed	no	No
Determination of implementation responsibility	Yes	Yes
Determination of implementation intervals	Yes	Yes
Employee instruction	Yes	yes
Further training for employees	Yes	yes
Adaptation of construction organization	No	No

FIG. 1
(PRIOR ART)

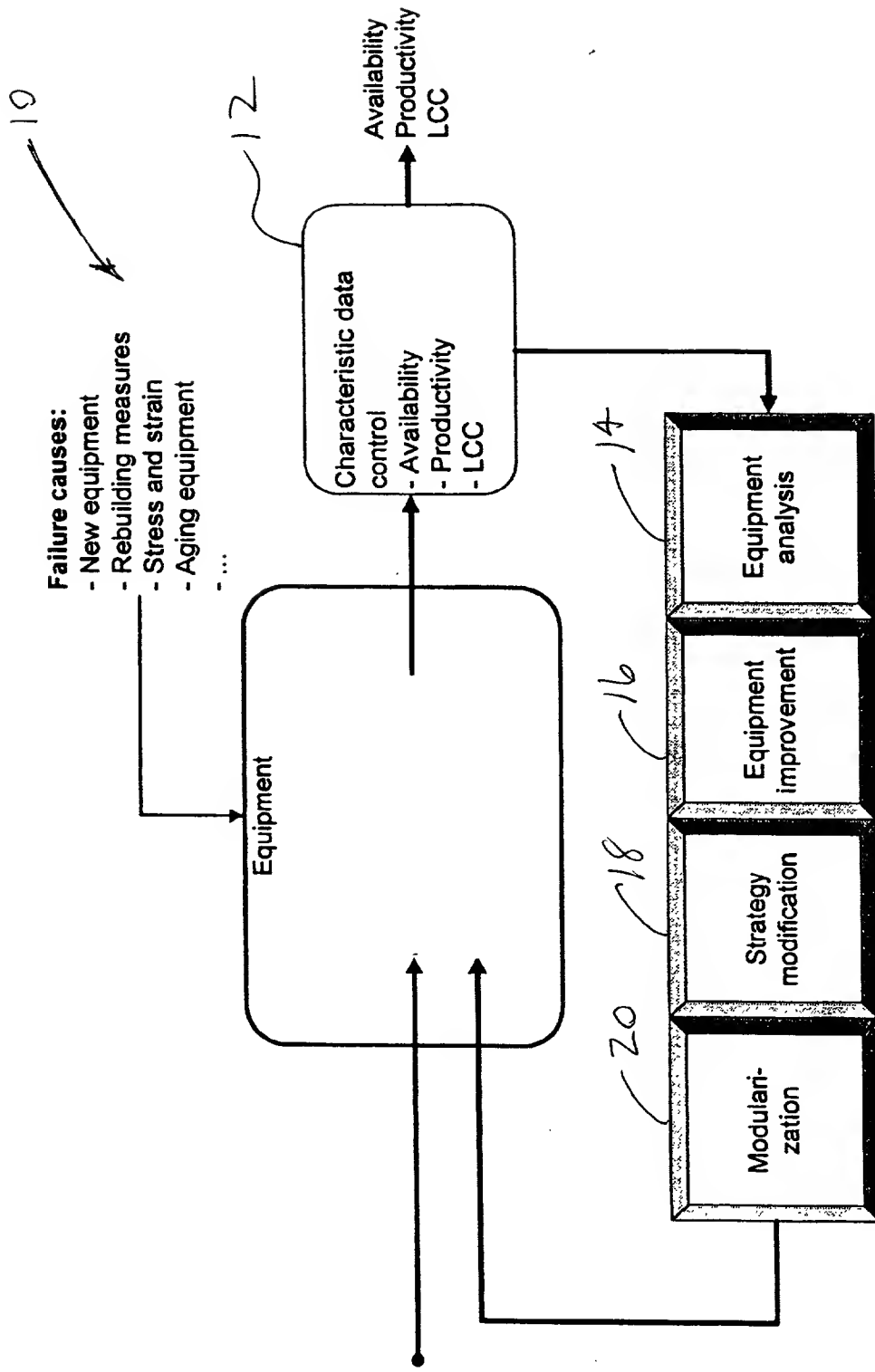
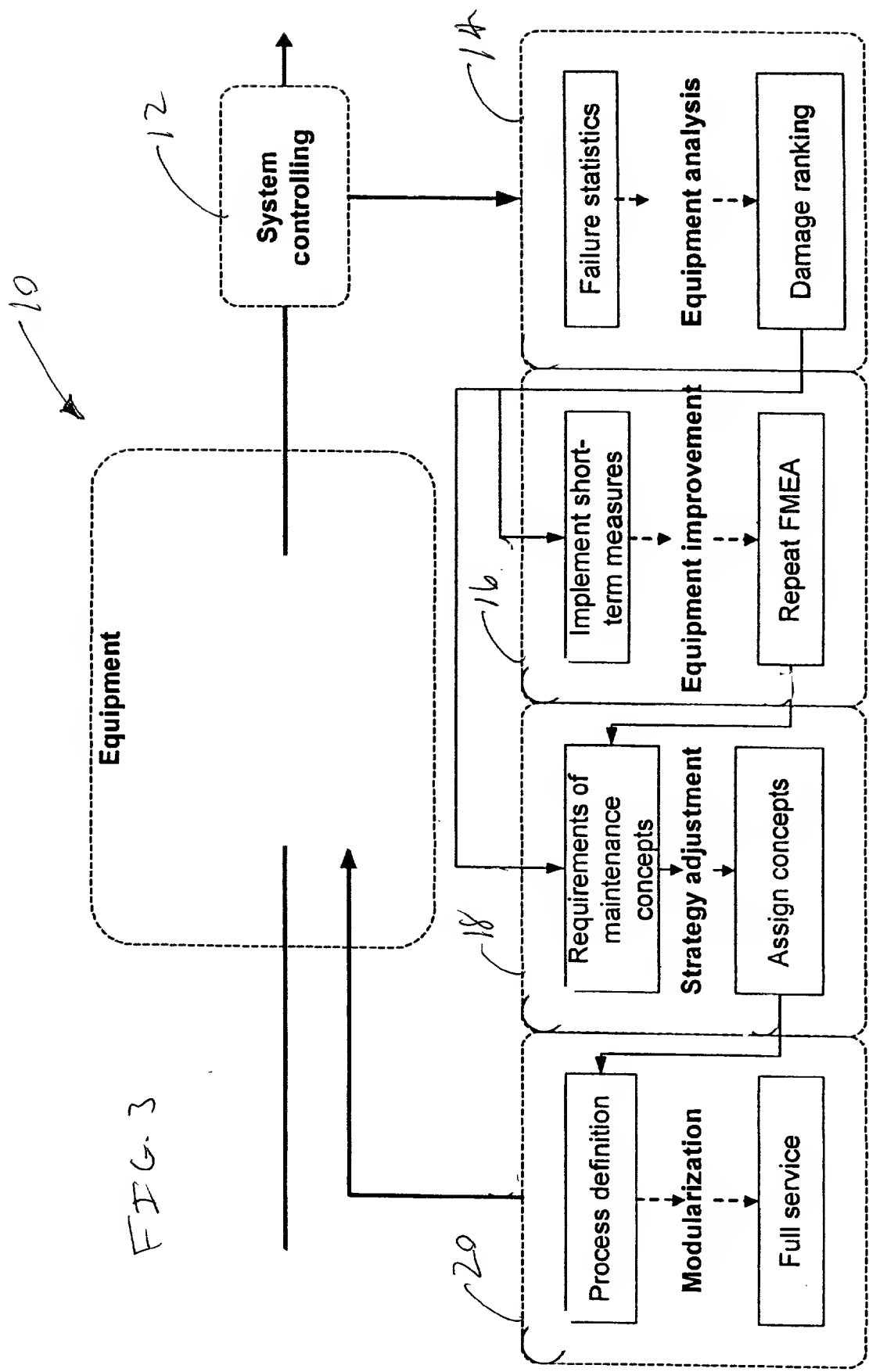
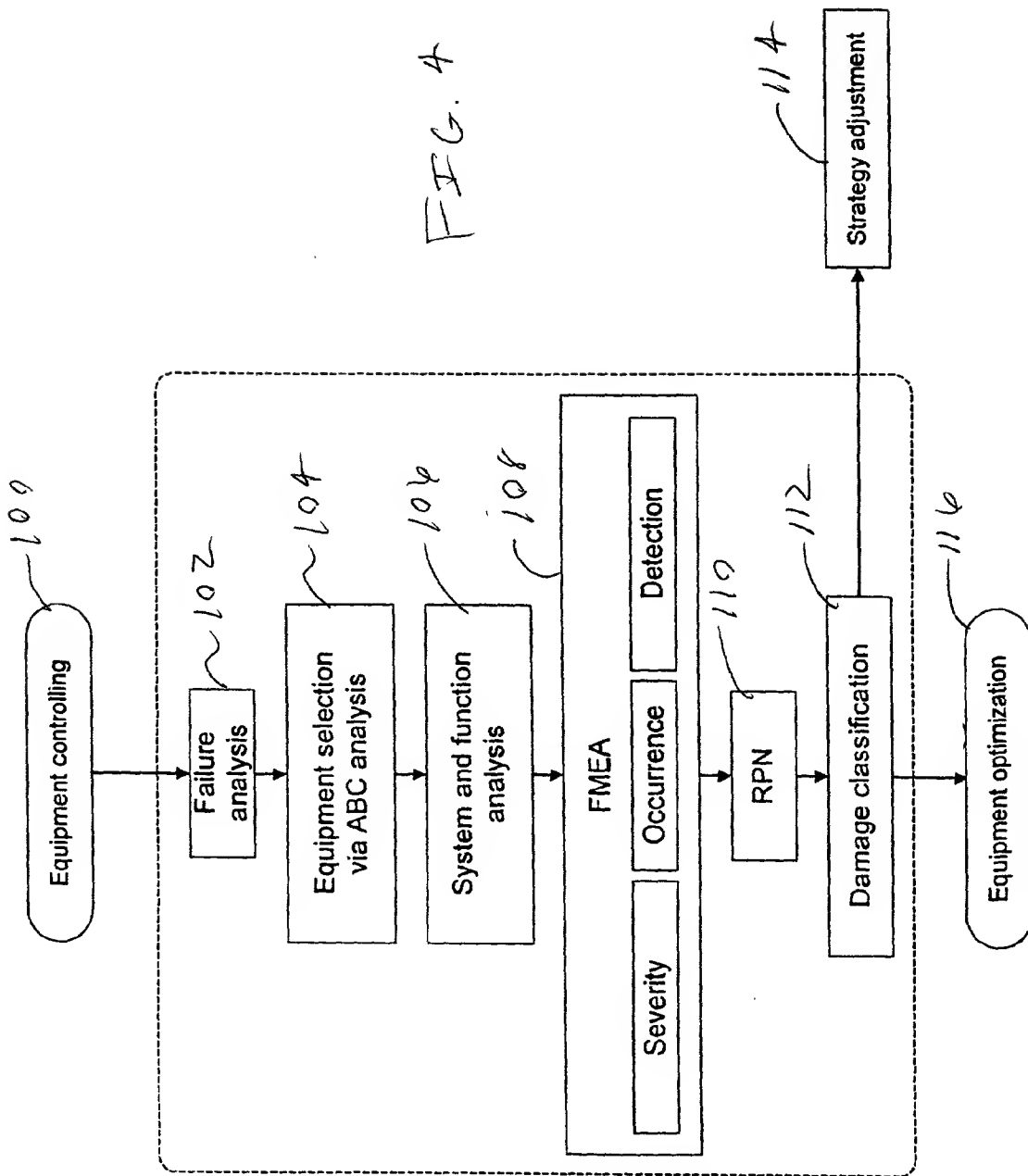


FIG. 2





Total Failure Time 1999 according to failure-causing equipment groups

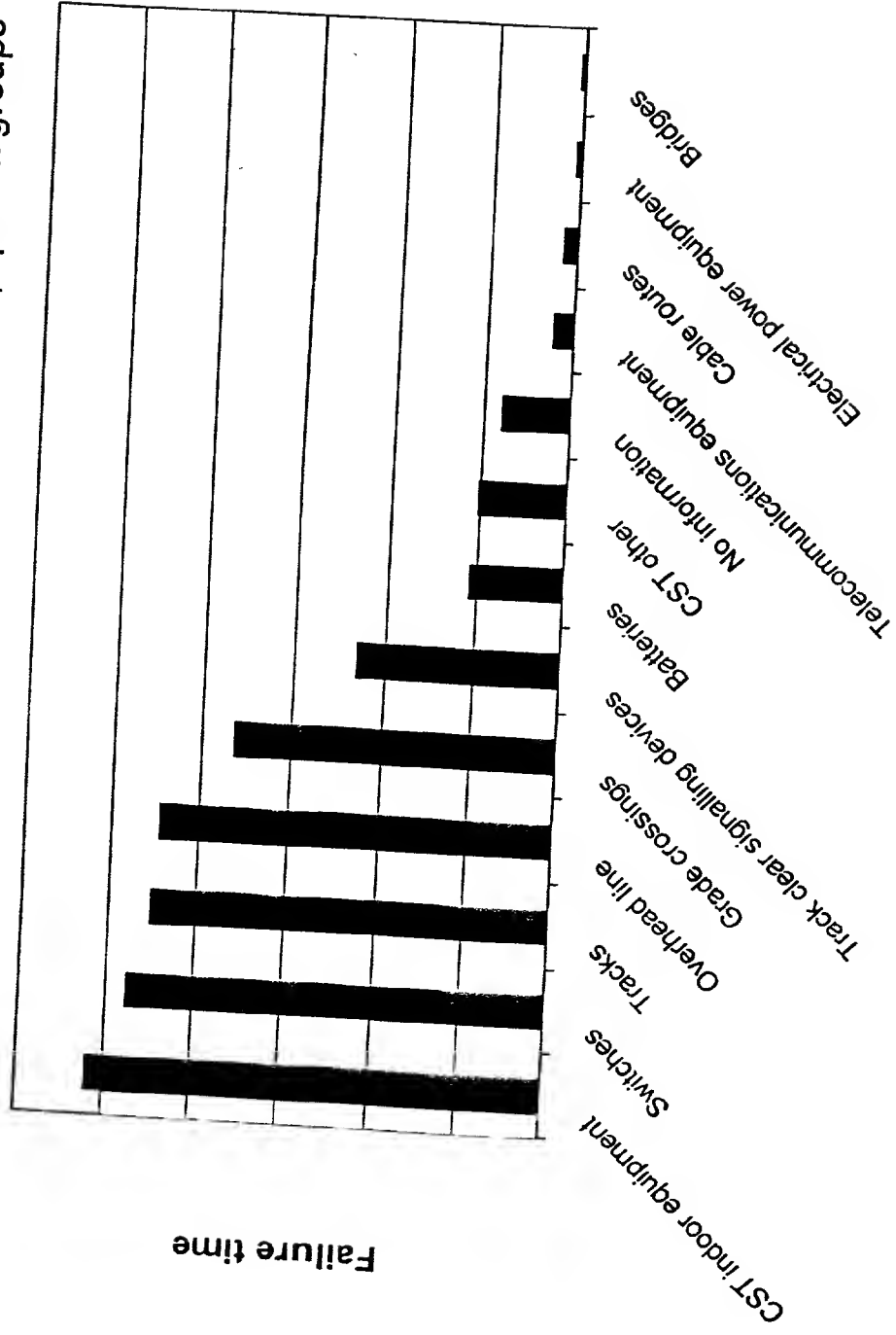


FIG. 5

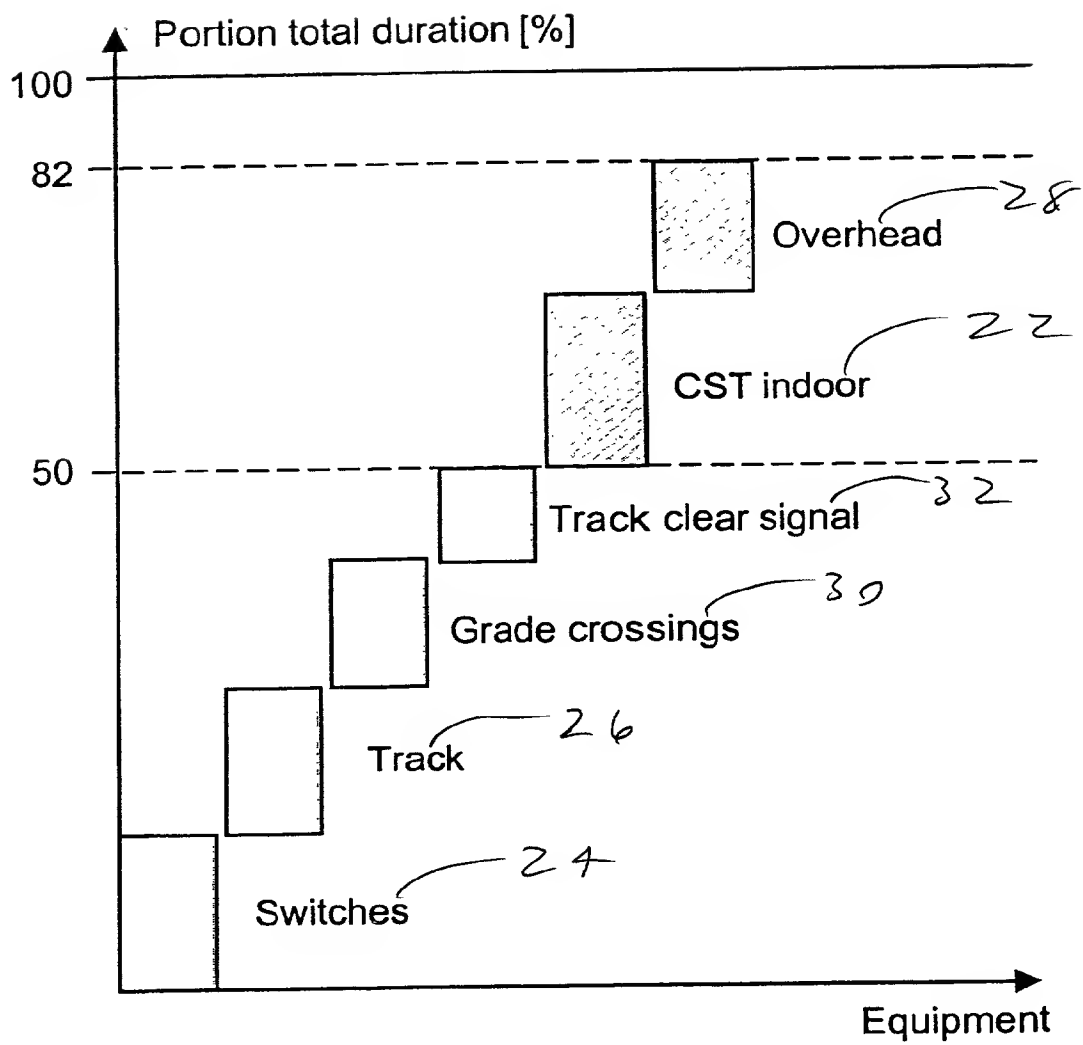


FIG. 6

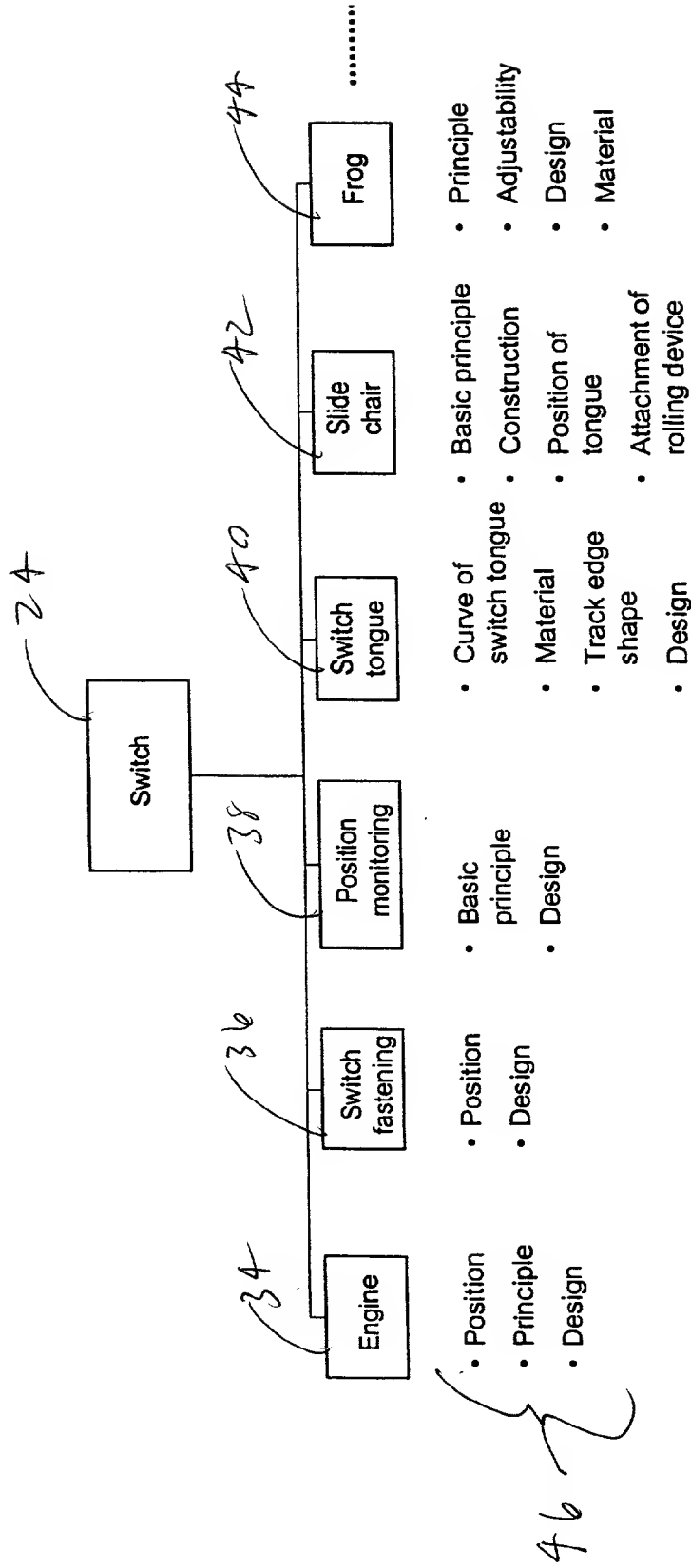


FIG. 7

FMEA Form		Headings			
			current status preventive measures		Improved status
			RPN		RPN
Fault Analysis			Current status		Improved status
			Failure Evaluation		
			assess data		
			RPN		
			Optimization Measures		
			proposals		
			results processing		
			RPN		

FIG. 8

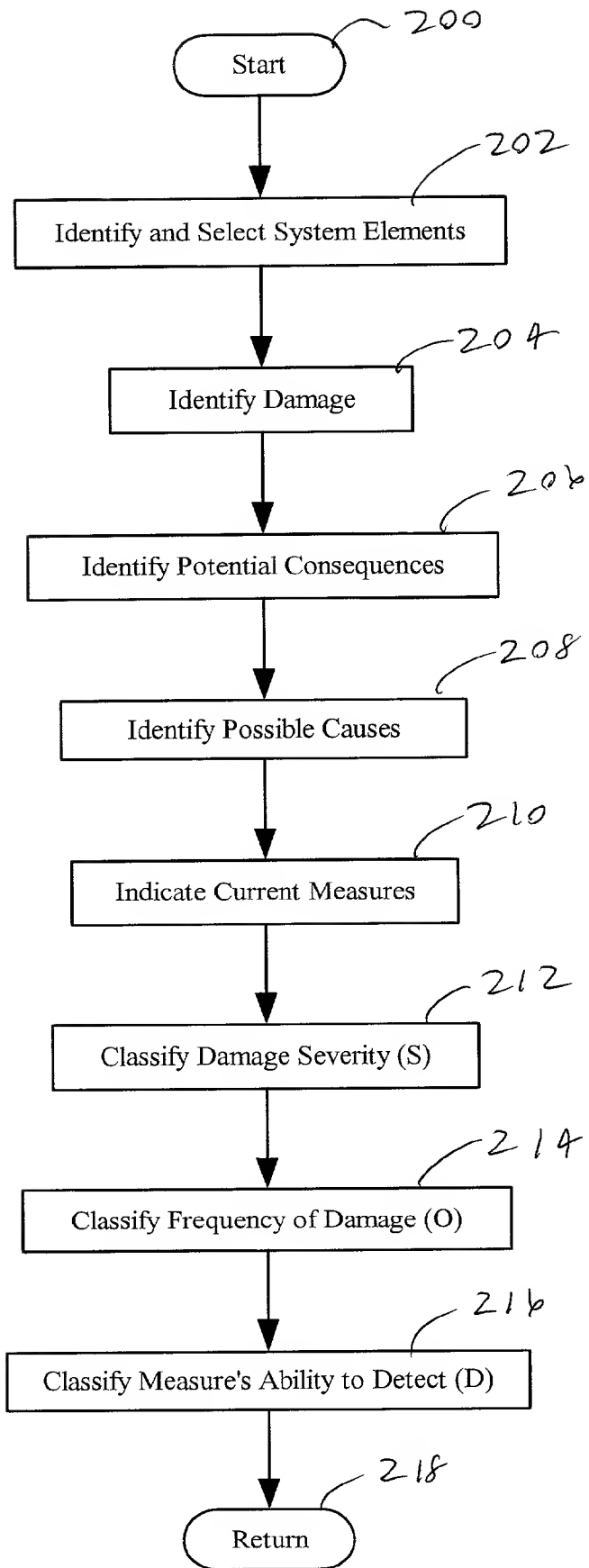


FIG. 9

Current Damage Cause Evaluation and Classification							
Damage Description	No.	Potential Results	S	Potential Causes (wear & tear)	Q	Preventive and Inspection Measures	RPN
Passage groove too small	1	Collision alarm through approaching of switch tongue	4	Bent switch tongue	6	Measurement of passage groove	6
	2	Broken switch tongue due to running up against switch tongue	9	Assembly defect in control mechanism	3	Acceptance inspection for maintenance work by external companies	7
	3	Wheels strike the switch tongue (overriding of the rail)	10				

FIG. 10

Current Damage Cause Evaluation and Classification								
Damage Description	No.	Potential Results	S	Potential Causes (wear & tear)	O	Preventative and Inspection Measures	D	RPN
Passage groove too small	1	Collision alarm through approaching of the switch tongue	4	Bent switch tongue	6	Measurement of passage groove	6	360
	2	Broken switch tongue due to running up against the switch tongue	9	Assembly defect in control mechanism	3		Acceptance of the repair by an outside company	7
	3	Wheels strike the switch tongue (overriding of rail)	10					

FFG. 11

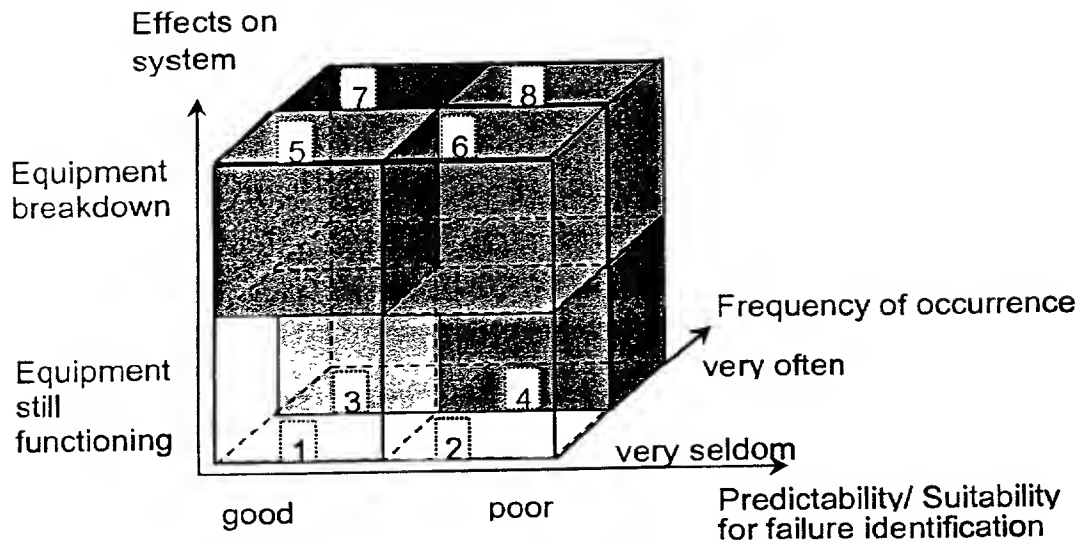


FIG. 12

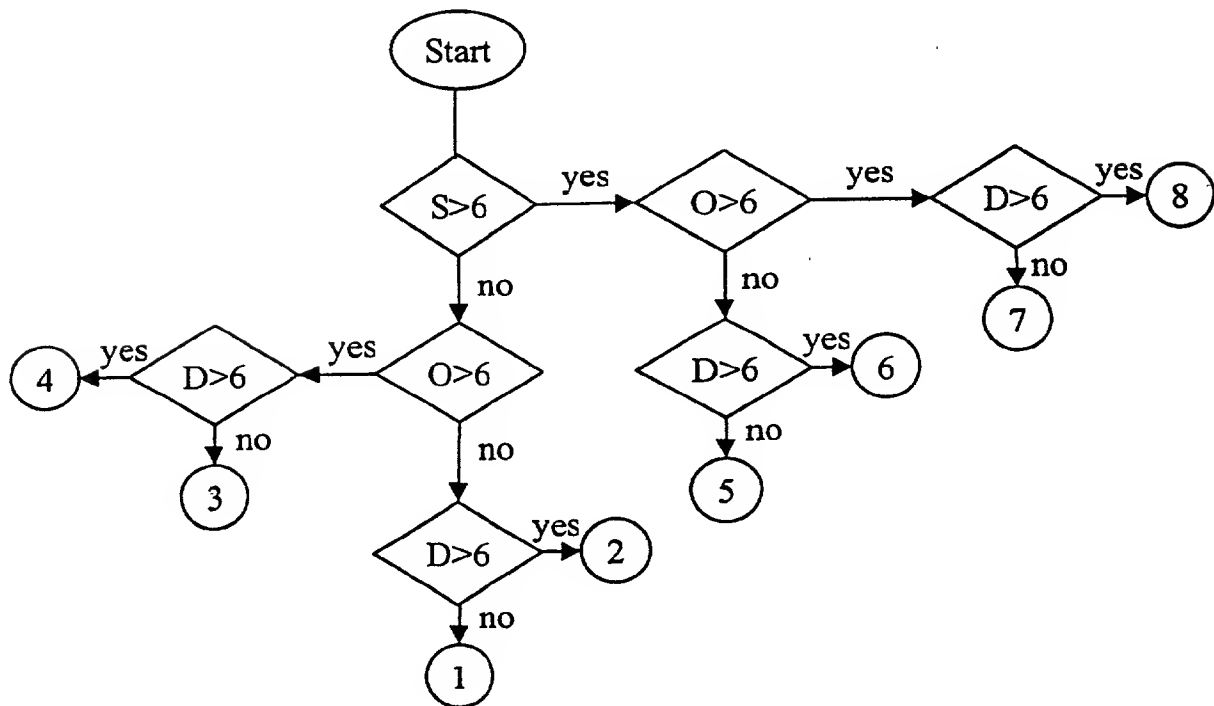


FIG. 13

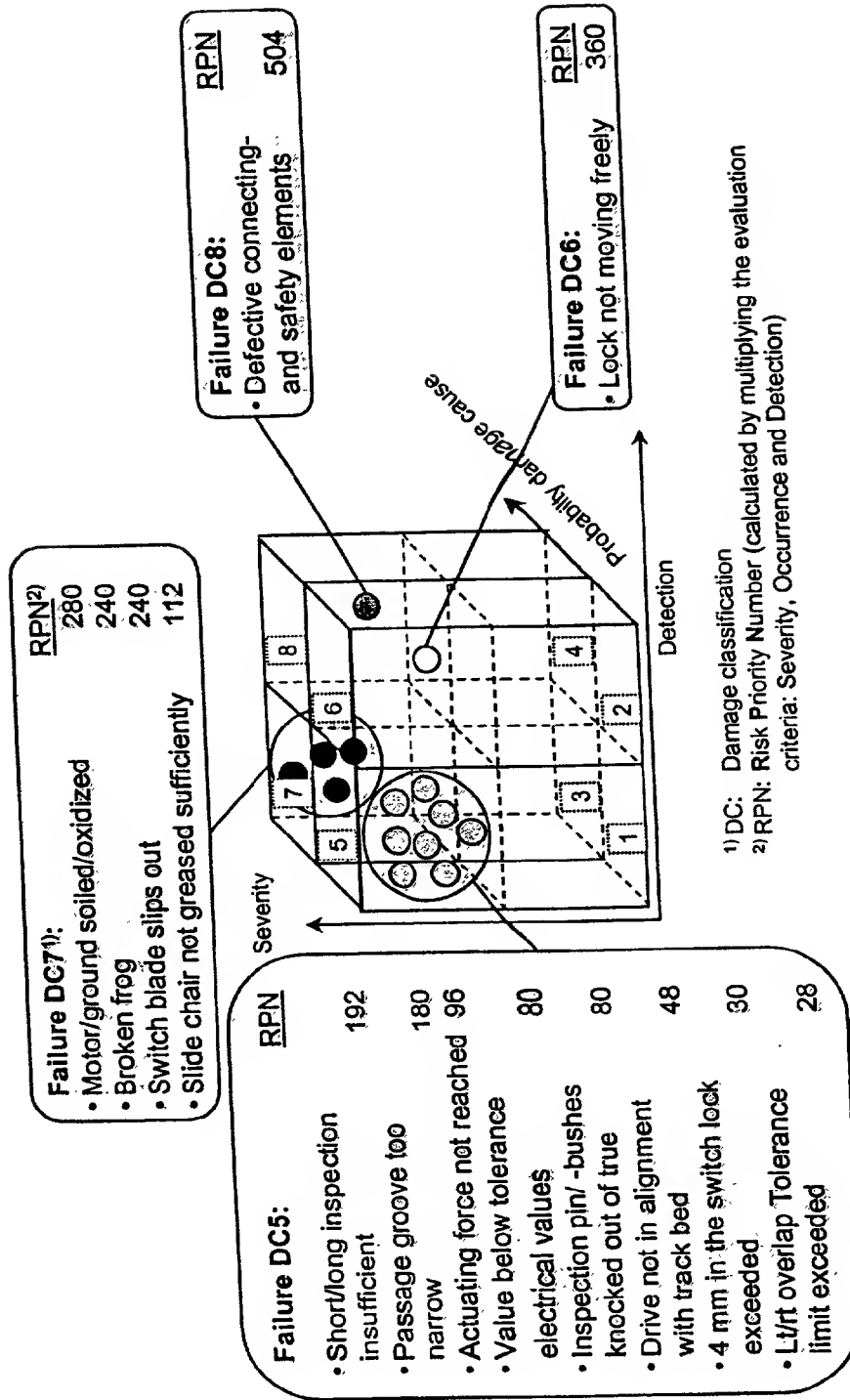


FIG. 14

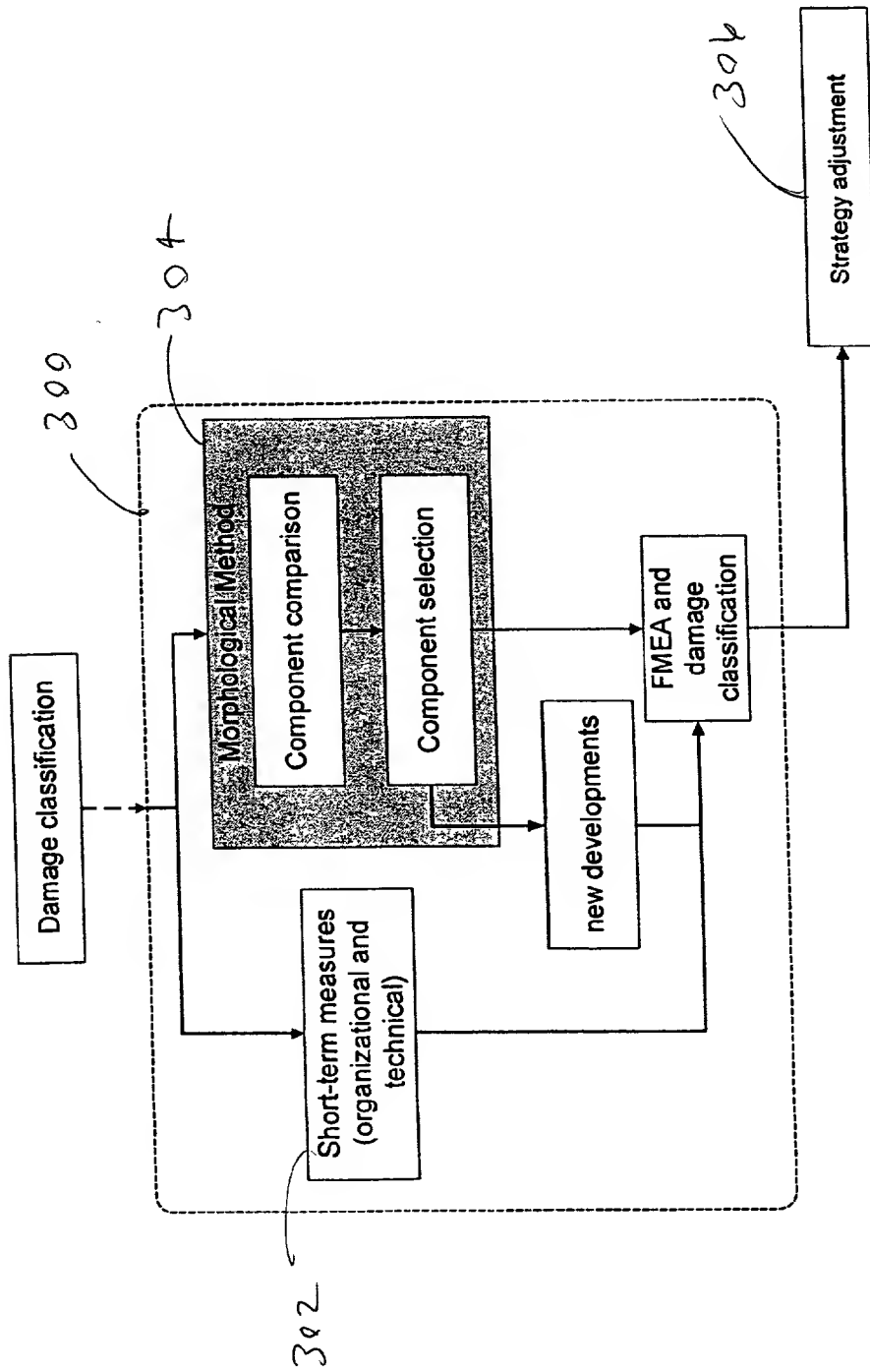


FIG. 15

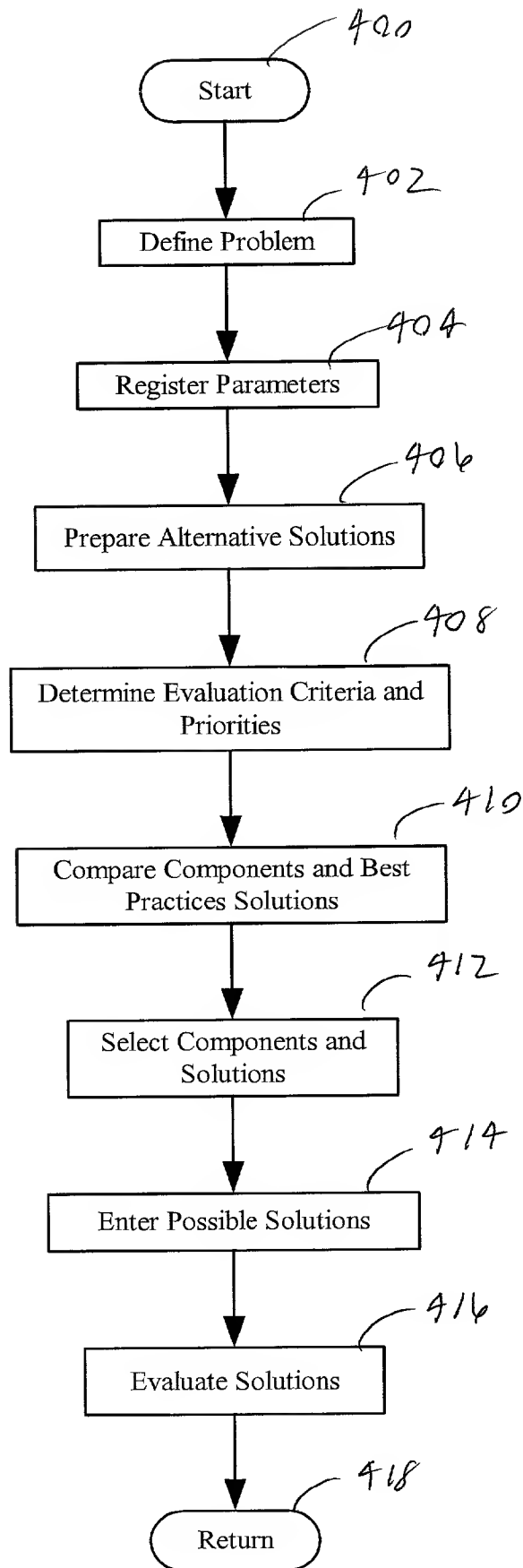


FIG. 18

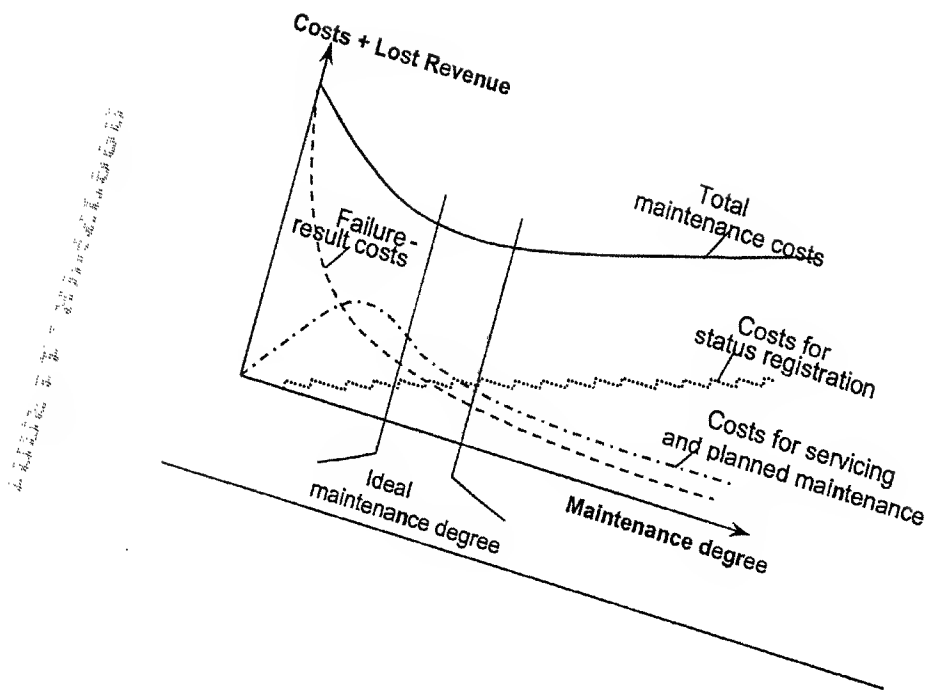


FIG. 19

FIG. 20

	Track shape	R 85	UIC 60
Basic conceptions	Travel surf. inclinat.	Rails with asymmetrical head with Incl. 1:40	Normal rails with 1:40 inclination
	Geometrical shape	Circular arc switch	Clothoid switch
Drive	Pos.	Interior drive (Integrated Into tie)	Drive on outside (Integrated Into tie)
	Basic princ..	Electrical	Locally set mechanically
	Str. shape	Electromech. with toothed rack	Electrohydraulic power transmission
	Design	Modular design	Variably adjustable
Actuating force transmi.	Basic princ.	Single drive	Central drive with hydraulic power transmiss. (Hydrolink)
Locking	Pos.	Fastening on inside	Fastening on outside in fastening tie
	Str. shape	Low-maintenance, fastening (WKA) (latch fastening)	Sliding clamp fastening
Safety interlocking (2nd trail level)	Basic princ.	Interlocking of tongue tester in drive	Tongue connector rod electrically monitored
	Basic princ.	Electromech. tongue stat. discrep. monitor	Limit switch (French/Czech system)
Stat. discrep. monitor.	Peak fastening version	Status tester in drive	
	Medium fastening version	Tongue tester	R-500
	Str.	Without temp. balancing poss.	New tester rod
Clear signal	Basic princ.	Axlecounter	100-Hz bond wire

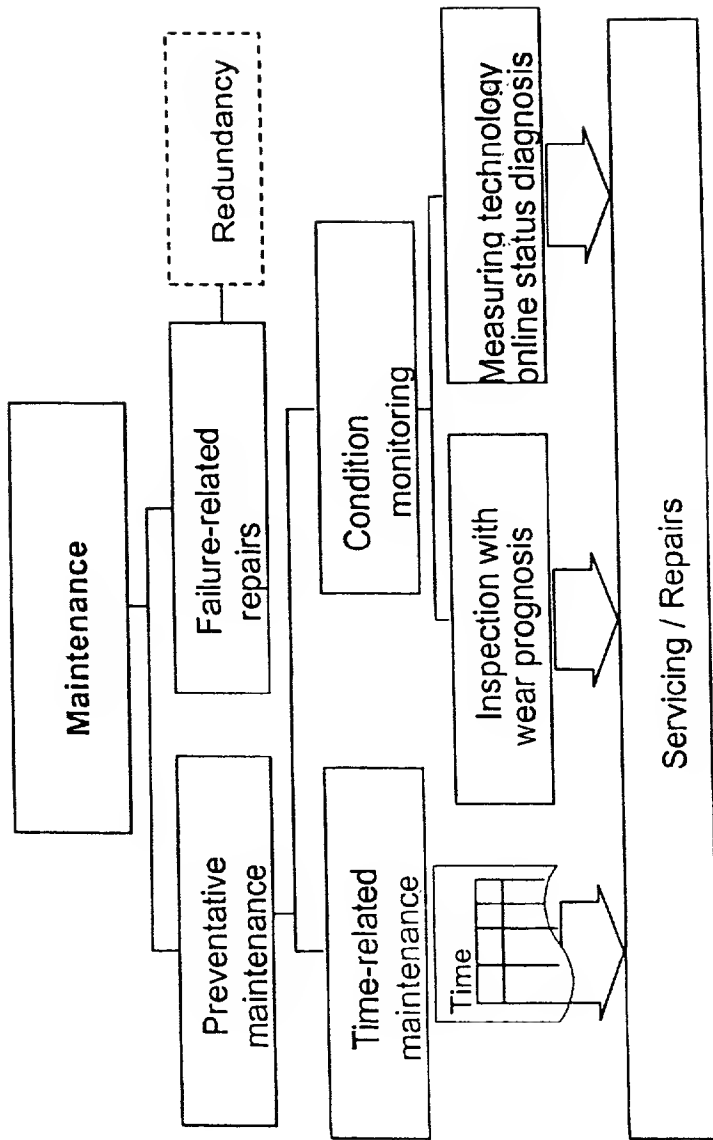


FIG. 21

FIG. 22

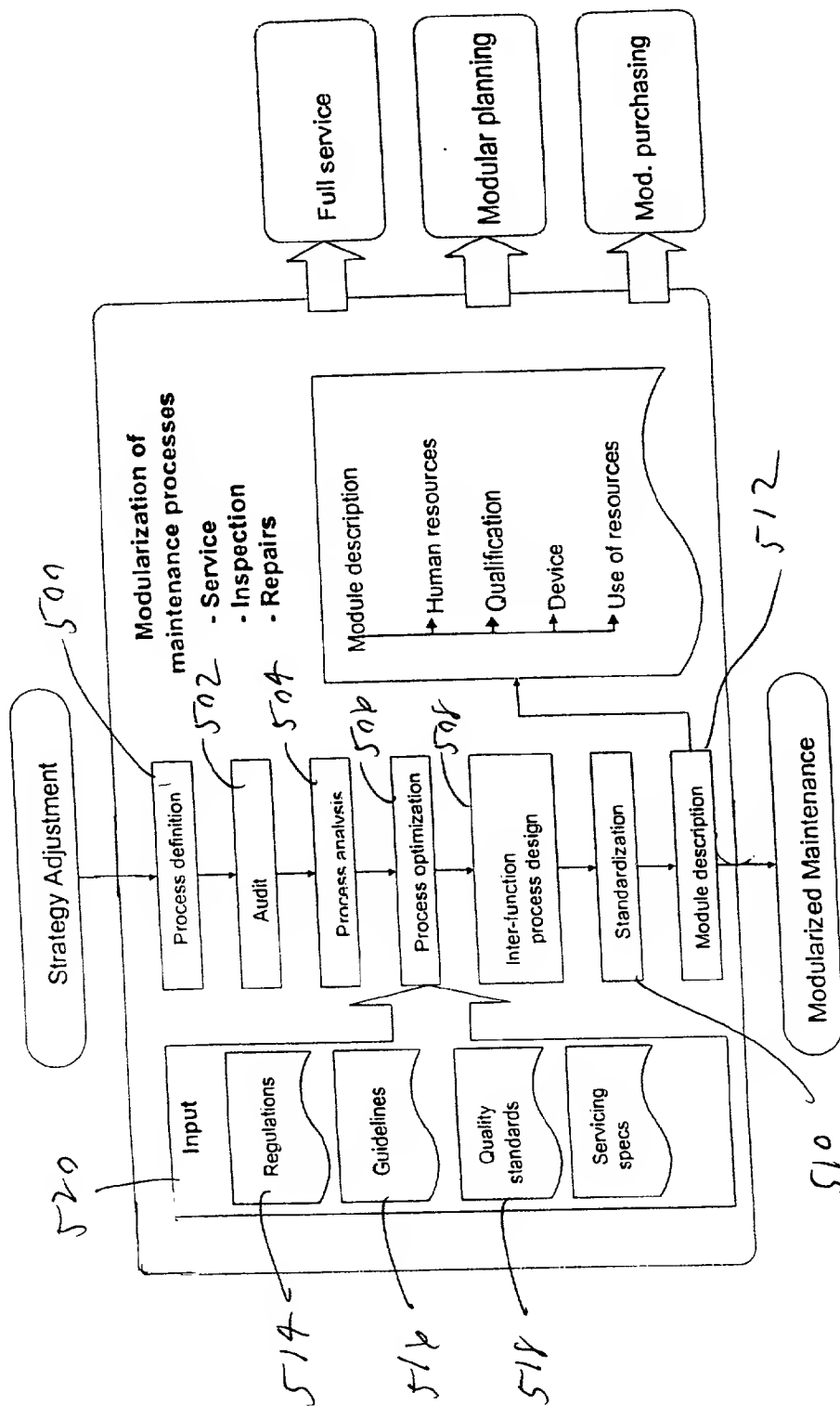


FIG. 22

Feb. 24

Components	TPM	RCM	Modularization
Focus on machines	No	Yes	Yes
Creation of inspection methods for the equipment	No	Yes	Yes
Individual determination of the maintenance strategy	No	Yes	Yes
Tips on the use of diagnostic methods	Yes	Yes	Yes
Creation of spare part management	No	General tips	Yes
Instructions on inclusion of sub-contractors	Yes	No	Yes
Tips for constructive modification	Yes	Yes	Yes
Instructions for redundancy formation	No	Yes	Yes
Tips for the speedy replacement of construction groups	Yes	Yes	Yes
Description of maintenance tasks	Inspection + service (not incl. repairs)	Inspection + service (<u>not</u> incl. repairs)	Inspection + service (not <u>incl.</u> repairs)
Tips for increased productivity	No	No	Yes
Determination of required time	No	No	Yes
Determination of implementation responsibility	Yes	Yes	Yes
Determination of implementation intervals	Yes	Yes	Yes
Employee instruction	Yes	Yes	Yes
Further training of employees	Yes	Yes	Yes
Adaptation of construction organization	No	no	yes

FIG. 25